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## Abstract

While trans employees have become more widely recognized in society, our understanding of their work experiences remains underdeveloped. In the current study, we investigate whether transitioning is associated with job satisfaction in England, Wales and Scotland. Using longitudinal data collected before and after sex reassignment surgery associations between job satisfaction and mental health/life satisfaction are examined for trans men and women. The estimations suggest that employees experience higher job satisfaction, mental health and life satisfaction after sex reassignment surgery than before. In addition, the estimations suggest that after sex reassignment surgery, the associations between job satisfaction and mental health/life satisfaction are stronger than before. Moreover, the estimations suggest that employees not only experience higher job satisfaction after sex reassignment surgery, but also during transitioning. The results suggest that, firms should not treat transitioning employees in a biased way, since their transition might entail positive personal and workplace advancements.

**Keywords:** Job satisfaction; Transitioning; Trans employees; Mental health; Life satisfaction; Panel data

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## 1. Introduction

The term trans is an umbrella label that includes many different self-identifications (Riggle, Rostosky, McCants, & Pascale-Hague, 2011). These self-identifications may be linked to biological sex, sexual experiences, gender, gender roles, gender performance or the transition process (Riggle et al., 2011). However, the term trans is traditionally associated with individuals whose gender identity, expression or behavior are different from those typically associated with their assigned sex at birth (Budge et al., 2013 and Riggle et al., 2011). The most reversible physical acknowledgment a trans person can make is cross-dressing (Bevan, 2015). At the other end of the scale, i.e. complete transition, is sex reassignment surgery. Between these lies a spectrum of alternatives, including hormone therapy, voice therapy, and breast enlargement or mastectomy (Bevan, 2015).

Current review studies suggest that trans people from the European Union, the United States and Australia are frequently subjected to rejection from their own families and communities and experience violations of human and political rights in housing, healthcare, education, employment, and legal systems (Bevan, 2015, Trevor and Boddy, 2013, Grant et al., 2011, Morton, 2008 and Whittle et al., 2007). In addition, it is often observed that trans people face higher unemployment and lower incomes, are victims of discrimination, and face higher poverty and homelessness than non-trans people (Bevan, 2015, Grant et al., 2011, Morton, 2008 and Whittle et al., 2007). With such an array of negative societal reaction, it is not surprising that trans people are thought to face higher levels of self-rejection, depression and self-harming than non-trans people (Bevan, 2015 and Gijs and Brewaeys, 2007).

In the international literature, studies do highlight the fact that firms are struggling to deal with trans employees cases due to lack of knowledge and training on the issue (Ozturk and Tatli, 2015, Whittle et al., 2008 and Whittle et al., 2007). As a result, some trans employees describe a variety of adverse experiences such as exclusions, insults, discomforts, and embarrassment on the part of employers, co-workers and customers (McPhail et al., 2016, Ozturk and Tatli, 2015, Whittle et al., 2008 and Whittle et al., 2007). Moreover, there are cases of discriminatory

treatments against trans employees in hiring, promotion, training and wage settings (Köllen, 2016, Ozturk and Tatli, 2015, Whittle et al., 2008 and Whittle et al., 2007).

The scope of this study is to examine whether gender transition is associated with job satisfaction and to thus evaluate how transitioning affects trans employees' workplace experiences. In particular, a number of relations are examined using longitudinal data for individuals in England, Wales and Scotland before and after their sex reassignment surgery for a number of variables, such as mental health, and life satisfaction. Given the fact that workplace studies for transitioning employees are scarce in the international literature, this study will examine the workplace functioning of an unexamined group of employees: men who have become women, and women who have become men through sex reassignment surgery.

The UK is considered a tolerant region when it comes to trans people (ILGA Europe, 2015). Indeed, based on the 2015 Annual Review of the Human Rights Situation of LGBTI People in Europe (ILGA Europe, 2015) the UK is the highest ranked country out of 49 others in relation to higher positive advances and lower negative trends against LGBTI people. The UK is one of the few countries to enable individuals to acquire the preferred sex (men, women) for all purposes under law, once they have received a diagnosis of gender dysphoria, and to be recognized as the legal sex opposite to the one ascribed to them at birth without undergoing sex reassignment surgery (Rundall, 2010 and Whittle et al., 2008). Moreover, based on the UK Equality Act 2010, which protects individuals from gender reassignment discrimination, people do not need to have undergone any specific treatment or surgery to change from their birth sex to their preferred gender. However, the current law as it stands makes no mention or allowance for people who do not fit into the male or female group. Genderqueer, non-binary and non-gender identities are very much left out in the cold, and this can cause significant problems in people's lives.

Regardless of the potentially transphobic environment, the UK and the US have a growing population of trans individuals who start their transition in order to shape a sense of self-identity (Bevan, 2015 and Hines and Sanger, 2010). Rundall (2010) suggests that the great majority of UK trans employees feel that they are accepted by all or most of their work-team. The study suggests that, after having reached the point of passing, many do not experience the bullying and harassment to which they were subjected before, and that colleagues become more comfortable around them and much friendlier (Rundall, 2010). However, the same study suggests that, while in most cases the reason for these employees changing jobs is personal choice, there are cases where employees become redundant because firms do not want a trans person to be the public face of the company (Rundall, 2010). In addition, based on a sample examined by Whittle et al. (2007) UK trans seem to have higher average educational levels and are over-represented in senior occupation classes compared with the UK national average. Current studies from the US utilizing trans employees suggest that gender transition is a worthy experience in terms of positive emotions and hopes for the future (Budge et al., 2013). Moreover, in the US, Brewster, Velez, Mennicke, and Tebbe (2014) investigate trans employees and find that a large proportion of them believe that gender transition is beneficial. The same study finds that feelings of happiness and relief after transition are cited by trans employees, with many using words such as 'fulfilling', 'free' and 'empowering' to describe their post-transition emotions (Brewster et al., 2014). Some trans employees report feeling supported in their transition, most often by their co-workers while some even wish they had transitioned earlier (Brewster et al., 2014). Based on these patterns, Brewster et al. (2014) suggest that assumptions that workplace gender transitions will be uniformly stressful or negative are often part of a monolithically bleak portrait that misses the nuanced experiences of many employees. However, both Brewster et al. (2014) and Budge et al. (2013) highlight some emotional hardships during the gender transition period.

Our study will provide insights into an important issue, particularly given the fact that employees' job satisfaction may provide a number of insights into important labor market behaviors, such as turnover and productivity (Linley et al., 2009 and Pavot and Diener, 2008). The outcomes of our research could well be important for firms, as long as organizational performance can be affected by workplace job satisfaction through the positive and/or negative behaviors of employees (Spector, 2008 and Mount et al., 2006). If transition entails higher job satisfaction, then this pattern might be important for workplace supportive policies towards transitioning employees. Happy employees are crucial to an organization's success, and thus firms should be interested in knowing how an employee might function by the time he/she has completed the gender transition (Spector, 2008 and Mount et al., 2006). As noted by McPhail et al. (2016) and Ozturk and Tatli (2015), research and practice should pay attention to the unique workplace lived experiences and evaluations of LGBTI employees, such as happiness or dissatisfaction, given that this group now makes up an important part of the global talent pool (Day & Greene, 2008).

## 2. Theoretical framework

Mental health is a state of mind characterized by emotional well-being, and good behavioral adjustment, ability to cope with stresses and sadness of life, the fulfilment of goals and potential, and a sense of connection to others (WHO, 2014). Individuals with gender dysphoria may suffer from a constant feeling of mental health discomfort related to their anatomic sex and their deep-rooted belief of belonging to the opposite gender (Gijs and Brewaeys, 2007, Green, 2005 and De Cuypere et al., 2005). Transition has traditionally been utilized to refer to people who undergo medical intervention, such as gender reassignment surgery (Budge, Orovecz, & Thai, 2015) to release gender discomfort (Moreno-Perez and de Antonio, 2012, Johansson et al., 2010 and Gijs and Brewaeys, 2007). Current literature suggests that sex reassignment surgical outcomes have a positive impact on psychological outcomes (Johansson et al., 2010). However, physical transformation is just one segment of the gender reassignment surgery, which also includes cognitive, social and emotional aspects (Callan, 2014, Gijs and Brewaeys, 2007 and Green, 2005). Review studies covering the last 50 years find that sex reassignment surgery resolves gender dysphoria problems, reduces neurotism, and increases extraversion and positive feelings (Johansson et al., 2010). As biological sex characteristics align with preferred social gender, individuals begin to experience less psychological distress and engage in less avoidant coping styles (Callan, 2014 and Budge et al., 2015). It seems that, through physical transformation, individuals recover their gender identity and face reduced levels of psychological distress and depression, all of which has a positive impact on their mental health and psychosocial function (Brewster et al., 2014, Brewster et al., 2012, Callan, 2014, Dhejne et al., 2011, Lobato et al., 2006, Smith et al., 2005, De Cuypere et al., 2006, Murad et al., 2010, De Cuypere et al., 2005 and Green, 2005). Based on these patterns, we formulate the following as the first of numerous hypotheses related to sex reassignment surgery and mental health:

### Hypothesis 1.

Sex reassignment surgery is positively associated with mental health; that is, after sex reassignment surgery individuals face better mental health.

Life satisfaction is defined as an individual's global and subjective evaluation of the positivity of his/her life as a whole or with specific domains (Linley et al., 2009, Pavot and Diener, 2008 and Diener et al., 2003). Life satisfaction reflects individuals' quality of life, including well-being, self-esteem, family and social-relations, and personal achievements (Johansson & Bernspang, 2003). Studies suggest that sex reassignment surgery has a positive effect on family, social, romantic, and sexual relations, all of which are attributed to social, physical and health adaptation of transitioning individuals (Brewster et al., 2014, Brewster et al., 2012, Salvador et al., 2012, Parola et al., 2010, Udeze et al., 2008, Lobato et al., 2006, De Cuypere et al., 2006 and Smith et al., 2005). In the international literature, these factors are constantly found to positively affect life satisfaction (Cheng and Smyth, 2015 and Helliwell, 2003). In addition, current studies find that sex reassignment surgery is associated with body satisfaction, appearance, self-esteem and life satisfaction (Hess, Neto, Panic, Rubben, & Senf, 2014). Based on these patterns, we formulate the following as the second of our hypotheses related to sex reassignment surgery and life satisfaction:

### Hypothesis 2.

Sex reassignment surgery is positively associated with life satisfaction; that is, after sex reassignment surgery individuals experience higher life satisfaction.

Job satisfaction refers to the positive emotional state resulting from the appraisal of one's job experience (Locke, 1976). Job satisfaction captures employees' self-evaluations in relation to their opportunities, relationships with colleagues and supervisors, job rewards including salary, progression and quality of working conditions (Drydakis, 2012b, Drydakis, 2015, Spector, 1997 and Spector, 2008). Job satisfaction is derived from the discrepancy between what an individual wants or values in a job and what he/she actually has in a job (Locke, 1976). The closer the match, the more employees perceive they are receiving outcomes they value and the higher the job satisfaction (Brief, 1998). It is suggested that the happier people are within their job, the more satisfied they are said to be (Drydakis, 2015, Spector, 1997 and Spector, 2008). Studies conclude that the analysis of employees' job satisfaction and the understanding of what makes different groups of employees satisfied can provide a number of insights into the most important labor market behaviors: productivity, absenteeism, quitting, and commitment (Green, 2010).

It is not only work-related factors such as personal functioning and development in the workplace that are associated with job satisfaction; indeed, internal or intrinsic factors such as psychological traits also have a correlation (Kwok et al., 2015, Judge and Klinger, 2008 and Luthans et al., 2004). For instance, extraversion and conscientiousness display positive correlations with job satisfaction, while, neuroticism displays negative correlations with job satisfaction (Judge, Heller, & Mount, 2002). Riggle et al. (2011) evaluate several positive aspects of a trans identity, such as congruency of self (which brings feelings of true peace, relief and being whole), enhanced interpersonal relationships, personal growth, such as self-confidence and self-awareness resiliency, and increased empathy. Brewster et al. (2012) find that gender transition relieves one of the stresses of having to constantly hide his/her true identity, and that this may promote genuine and satisfactory relationships with coworkers and supervisors. They also reveal that an explicit trans identity disclosure might be associated with greater job satisfaction. Indeed, Brewster et al. (2014) suggest that transition might affect employees' confidence and productivity.

Based on Morton (2008), following sex reassignment surgery, trans employees can bring so much more to their workplace than they did before. As we have stated, gender transition might free employees from the worries and confines of being unhappy with their own self-perceptions and their self-worth (Salvador et al., 2012, Dhejne et al., 2011, Parola et al., 2010 and Johansson et al., 2010). Happier employees tend to be successful and accomplished across multiple life domains, including their job (Drydakis, 2016, Avey et al., 2011 and Luthans and Avolio, 2009). Based on Morton's (2008) study after transitioning, employees may well take more pride in their work, and can concentrate on what they are doing rather than counting down the hours until they go home (Morton, 2008). Individuals experiencing positive emotions take advantage of their time in this state—free from immediate danger and unmarked by recent loss—to seek new goals that they have not yet attained (Carver, 2003 and Fredrickson, 2001).

Morton (2008) finds that, after a sex reassignment surgery, employees are likely to have better communication and negotiation skills, the confidence to make difficult but necessary decisions, self-organization skills, and an innovative constructive approach to problem-solving. For transitioning employees, it may be that the life-solving skills learned could help in work life, thus increasing job satisfaction (Elliot & Thrash, 2002). In addition, based on Morton's (2008) study, workplace colleagues find that after transition, employees are more helpful, productive, more approachable and gregarious. As we have examined, a sex reassignment surgery might have a positive effect on social relations due to the social adaptations that take place (Salvador et al., 2012 and Parola et al., 2010). Considering these patterns from a labor economics, human resources and psychology point of view, we could suggest that after transition, these increased core productivity characteristics may enhance employees' job satisfaction. Based on these patterns, we formulate the following as the third hypothesis related to sex reassignment surgery and job satisfaction:

### Hypothesis 3.

Sex reassignment surgery is positively associated with job satisfaction; that is, after sex reassignment surgery individuals experience higher job satisfaction.

Recent studies reveal that sex reassignment surgery enables people to recover their gender identity, reduce neuroticism, and increase mental health and positive feelings (Brewster et al., 2014, Brewster et al., 2012, Dhejne et al., 2011, Johansson et al., 2010 and Green, 2005). Indeed, as long as good mental health is positively associated with job satisfaction (Avey et al., 2011, Culbertson et al., 2010, Lyubomirsky et al., 2005 and Luthans et al., 2004) we could suggest that after sex reassignment surgery the relation between mental health and job satisfaction might be stronger than before. Positive psychology and happiness act as internal factors influencing job satisfaction (Culbertson et al., 2010, Luthans et al., 2004 and Graham et al., 2004). Traits such as optimism, hope and happiness could build strengths and competencies and enable employees to overcome challenges at work and perceive the job as more fulfilling and satisfying (Avey et al., 2011, Luthans and Avolio, 2009 and Luthans et al., 2004). Based on Lyubomirsky et al.'s (2005) meta-analysis, people with positive psychology and happy people can form attachments to others and have the resilience to seek more opportunities (Culbertson et al., 2010). Those who are happier are more comfortable taking risks, more open-minded, more creative, productive, effective, and are satisfied with their job (Avey et al., 2011 and Lyubomirsky et al., 2005). Thus, based on the positive relation between sex reassignment surgery and mental health, as well as the positive relation between mental health and job satisfaction, we formulate the following as the fourth of our hypotheses related to sex reassignment surgery, mental health and job satisfaction:

#### Hypothesis 4.

After sex reassignment surgery the relationship between mental health and job satisfaction is stronger than before; that is, after sex reassignment surgery mental health is more positively associated with job satisfaction than before.

In addition, the current literature finds that after a sex reassignment surgery individuals face higher levels of life satisfaction (Salvador et al., 2012, Parola et al., 2010, Udeze et al., 2008 and Lobato et al., 2006) and employees who are satisfied with their lives are also satisfied with their current jobs (Qu and Zhao, 2012, Bowling et al., 2010 and Jones, 2006). In light of this, we could suggest that after sex reassignment surgery the relation between life satisfaction and job satisfaction may be stronger than before. High levels of personal satisfaction (non-job satisfaction oriented) engender strong feelings of internal control, such as feelings of high self-esteem and sense of control, which in turn lead to strong expectancy and instrumental beliefs which affect workplace motivations, performances and job satisfaction (Qu and Zhao, 2012, Bowling et al., 2010, Lawler, 1971 and Steiner and Truxillo, 1987). People satisfied with their life are characterized by positive moods, and work actively towards new goals; indeed, experiencing these moods affects their job engagement and the satisfaction they derive from their job (Qu and Zhao, 2012, Bowling et al., 2010 and Powell and Greenhaus, 2010). Thus, by considering the positive relation between sex reassignment surgery and life satisfaction, as well as the positive relation between life satisfaction and job satisfaction, we formulate the following as the fourth of our hypotheses related to sex reassignment surgery, life satisfaction and job satisfaction:

#### Hypothesis 5.

After sex reassignment surgery the relationship between life satisfaction and job satisfaction is stronger than before; that is, after sex reassignment surgery life satisfaction is more positively associated with job satisfaction than before.

With regard to Hypotheses 3, 4 and 5, the relationships evaluated fit well with the Authenticity theory (Kernis, 2003) which suggests that positive psychology, particularly optimism and self-esteem, result in greater self-awareness and self-regulated positive behaviors which stimulate positive personal growth, decision making and actions. Indeed, these are also related to work engagement, employees' extra effort and organizational citizenship behavior, job performance and job satisfaction (Azanza et al., 2013, Bamford et al., 2012, Edú et al., 2012, Moriano et al., 2011 and Ilies et al., 2005).

It is important to consider that in the current study we evaluate relations and not causal patterns between well-being indicators and job satisfaction. The causal relation between mental health/life satisfaction and job satisfaction remains one of the most enduring questions in social sciences, although disentangling causal paths is beyond the scope of this study. With this said however, it might be important, particularly in relation to the setting of this research, to refer to a study by Bowling et al. (2010), who focus on longitudinal studies and find that the causal relationship between life satisfaction and job satisfaction is stronger than the causal relationship between job satisfaction and life satisfaction. In addition, based on Rode (2004), job satisfaction does not predict life satisfaction when the effects of personality and non-work satisfaction are controlled. Moreover, based on Near and Rechner (1993), job satisfaction explains around 1% of the variance in life satisfaction controlling for non-work satisfaction and living conditions. In the organizational literature, life satisfaction is recognized as important when it comes to motivating employees while there is also evidence that life satisfaction may be a stronger correlate of job performance compared with job satisfaction (Jones, 2006).

### 3. Data

#### 3.1. Data gathering and variables coding

In 2012, we approached 3 trans associations based in England, 2 trans associations based in Wales, and 2 trans associations based in Scotland. We presented the aims of our project, namely to work with trans men and women (employed) who were in "social gender role transition" and were in the process of having a sex reassignment surgery in the very near future. In the UK, people who want to have gender reassignment surgery must usually live in their preferred gender identity full-time for at least a year. This is known as "social gender role transition", and helps in confirming whether permanent surgery is the right option (Gender Identity Clinics, 2012). We kindly asked for their cooperation. The associations used mass mails to forward the questionnaires (with clear information/guidelines regarding our longitudinal study and the target population) to their members. In addition, we

kindly asked the associations to let us participate in their open days and members' activities in order to promote our project. In addition, in 2012 we had the chance to participate in big events organized by the associations, where we approached additional trans people, LGBT unions, human rights organizations, HR agencies and governmental organizations.

For this study, the data gathering period spanned 2012 to 2015 (8 volumes). Data gathering sessions took place twice per year. At the end of the first data gathering period, 283 people had forwarded their questionnaires to the research team. Up until the end of the data gathering period, 66 of them had either terminated their collaboration with us, or severe absence of data had meant that we were unable to use their questionnaires. Of the 217 remaining people, 160 of them had reassigned their sex surgically. However, 28 out of those who had surgically reassigned their sex were unemployed or inactive in at least one of our data gathering periods, and their observations were omitted. As a result, the valid sample consisted of 132 employed participants (78 biological men and 54 biological women) who at the end of the first data gathering period had not had a sex reassignment surgery. However, at the end of the final data gathering period, all of them had undergone a sex reassignment surgery, resulting in 624 person-wave observations  $78 \times 8$  waves for men who became women and 432 person-wave observations  $54 \times 8$  waves for women who became men.

Job satisfaction (JS) was assessed using a 4-item job satisfaction scale (Smith, Kendall, & Hulin, 1969). These items were used to measure employee's satisfaction with enjoyment of tasks (JS1), personal performance (JS2), job rewards (JS3), and relations with colleagues (JS4). Participants rated these items on a 5-point continuum (1 = strongly disagree to 5 = strongly agree). These questions were separate from non-work associated factors such as family oriented issues. The 4 items were added in order to form a single indicator factor (continuous variable) for job satisfaction ( $JS = JS1 + \dots + JS4$ ).

Mental health (MH) was measured using a 4-item mental health scale (Ware, Snow, Kosinski, & Gandek, 1993). These items were used to measure employee's positive mental health in the previous week in relation to positivism towards life (MH1), extraversion (MH2), ability to cope with stress (MH3), and optimism about the future (MH4). Participants rated these items on a 4-point continuum (never = 1; seldom = 2; some of the time = 3; most of the time = 4). The participants had to answer these questions in 2 different settings: non work related and work related. That is, participants had to answer whether they had felt happy the previous week because of non-work-related factors or work-related factors. In this study, to minimize the potential causality between mental health and job satisfaction, we utilized non-work-related information on mental health status. The aforementioned items were added in order to form a single indicator factor (continuous variable) of mental health ( $MH = MH1 + \dots + MH4$ ).

Moreover, the variable life satisfaction (LS) was assessed using a 4-item life satisfaction scale (Diener, Emmons, Larsen, & Griffin, 1985). These items were used to measure employees' general judgements of life satisfaction in relation to health-condition (LS1), social relations (non-work related) (LS2), self-esteem (LS3), and body-image (LS4). Participants rated these items on a 5-point continuum (1 = strongly disagree to 5 = strongly agree). In this study, to minimize the potential causality between job satisfaction and life satisfaction, life domains in relation to career achievements, salary level and colleague interaction were not included in the index. These items were added in order to yield a single indicator factor (continuous) for life satisfaction ( $LS = LS1 + \dots + LS4$ ).

Finally, we controlled for participants' sex reassignment surgery (1 = after sex reassignment surgery; 0 = otherwise), age (a continuous variable), ethnicity (1 = British, 0 = otherwise), higher education degree (1 = higher education degree, 0 = otherwise), years of actual working experience (a continuous variable), white-collar employment (1 = white-collar employment, 0 = otherwise), regions events (2 dummy variables, where Britain was the reference category), and time effects (eight dummy variables, where event 1 was the reference category).

### 3.2. Descriptive statistics

Table 1, Panel I, presents the longitudinal descriptive statistics (2012–2015) for men who became women. Panel II displays measures before sex reassignment surgery (first period), while Panel III gives measures after sex reassignment surgery (final period). As can be seen, the mean age is 36.3 years, while 66.6% hold a higher education degree, and 78.2% are white collar employees. Similarly, in Table 2, Panel I, for women who became men, the longitudinal descriptive statistics show that the mean age is 35.1 years, 42.5% hold a higher education degree, and 59.2% are white collar employees. Importantly, for both groups of employees, the participants have not changed jobs during the data gathering period.

Table 1 clearly shows that job satisfaction for trans men who became women before sex reassignment surgery is 8.3 (first period), while it becomes 12.3 after sex reassignment surgery (final period). The difference is statistically significant at the 1% level (t-test = 12.5). In addition, statistically significant differences at the 1% level are estimated for mental health and life satisfaction before and after the sex reassignment surgery (7.8 versus 10.6; t-test = 10.1, and 8.1 versus 11.2; t-test = 13.9, respectively). In all cases, we offer the sub-items for job satisfaction, mental health and life satisfaction before and after the sex reassignment surgery.

From Table 2, we observe that job satisfaction for women who became men before sex reassignment surgery is 7.5, and becomes 11.6 after sex reassignment surgery. The difference is statistically significant at the 1% level (t-test = 8.3). Moreover, statistically significant differences at the 1% level are estimated for mental health and life satisfaction before and after the sex reassignment surgery (7.6 versus 9.8; t-test = 9.9, and 7.4 versus 10.1; t-test = 12.7, respectively). It is clear that differences exist between the two groups. We observe that men who became women experience higher job and life satisfaction than women who became men. The same pattern holds for mental health.

#### 4. Empirical framework

In order to empirically evaluate the study's hypotheses, we followed the empirical approach employed by most current empirical studies on LGBTI employees' job satisfaction (Leppel and Clain, 2015, Drydakis, 2015, Leppel, 2014, Drydakis, 2012b and Carpenter, 2008). In all models presented in this study, the Hausman tests suggest that the random effects approach is favorable over fixed effects. The association between sex reassignment surgery and mental health (Hypothesis 1) is given by:

$$MH_{it} = srs_i b_{i1t} + t_{2i} b_{i2t} + t_{3i} b_{i3t} + t_{4i} b_{i4t} + t_{5i} b_{i5t} + t_{6i} b_{i6t} + t_{7i} b_{i7t} + t_{8i} b_{i8t} + x_i b_{i9t} + A_i + u_{it} \quad \text{Equation 1}$$

where MH is mental health, srs is a dummy variable for sex reassignment surgery,  $t_2, \dots, t_8$  are dummy variables controlling for time effects; from periods 2 (second wave) to 8 (eighth wave),  $x$  is a vector of individual characteristics controlling for age, ethnicity, higher education degree, years of actual working experience, white-collar employment, and region,  $i$  refers to individuals,  $t$  measures time,  $A$  is the random effect, and  $u$  is the error component and varies over both individuals and time. A positive  $b_1$  corresponds to better mental health after sex reassignment surgery. In addition, positive  $b_2, \dots, b_8$  correspond to better mental health as time passes. Based on the nature and formation of this study, time effects could be envisioned as variables that capture the relation between gender transition on mental health over time. This specification adds to the analysis. More specifically, we are able to provide comparisons between period 1 (reference category) and period 2, as well as between period 1 (reference category) and period 3 etc. We are also able to evaluate whether gender transition progressions, as they are probably captured by time effects, are associated with mental health.

The association between sex reassignment surgery and life satisfaction (Hypothesis 2) is given by:

$$LS_{it} = srs_i b_{i1t} + t_{2i} b_{i2t} + t_{3i} b_{i3t} + t_{4i} b_{i4t} + t_{5i} b_{i5t} + t_{6i} b_{i6t} + t_{7i} b_{i7t} + t_{8i} b_{i8t} + x_i b_{i9t} + A_i + u_{it} \quad \text{Equation 2}$$

where LS is life satisfaction. Eq. (2)'s interpretation is comparable to that of Eq. (1).

The association between sex reassignment surgery and job satisfaction (Hypothesis 3) is given by:

$$JS_{it} = srs_i b_{i1t} + t_{2i} b_{i2t} + t_{3i} b_{i3t} + t_{4i} b_{i4t} + t_{5i} b_{i5t} + t_{6i} b_{i6t} + t_{7i} b_{i7t} + t_{8i} b_{i8t} + x_i b_{i9t} + A_i + u_{it} \quad \text{Equation 3}$$

where JS is job satisfaction. Similarly, Eq. (3)'s interpretation is comparable to that of Eq. (1).

In our analysis, we subsequently adjusted Eq. (3) to control for mental health and life satisfaction. In doing so, we were able to provide a better informed model and consider additional important and relevant patterns. A positive mental health coefficient would suggest a positive association between mental health and job satisfaction. Similarly, a positive life satisfaction coefficient would suggest a positive association between life satisfaction and job satisfaction. Moreover, in this study we examine Hypotheses 1 to 3 for each period. We are interested in evaluating whether positive associations between sex reassignment surgery and mental health, as well as life satisfaction and job satisfaction hold over time. In addition, Eqs. (1), (2) and (3) were estimated separately for men who became women and for women who became men in order to have a clear picture of the relations. However, after the hypotheses testing we simultaneously pooled the whole sample. The aim of the new specification was to evaluate specifically whether different job satisfaction patterns hold between the two groups. The new dummy variable 'men to women' equals 1 when we refer to men to women and equals 0 when we refer to women to men. A positive 'men to women' coefficient would suggest that men to women experience higher job satisfaction than women to men.

Moreover, in order to evaluate whether the relationship between mental health and job satisfaction is stronger after sex reassignment surgery than before (Hypotheses 4) we estimate the interaction between sex reassignment surgery and mental health: sex reassignment surgery x mental health. Similarly, in order to test whether the relationship between life satisfaction and job satisfaction is stronger after sex reassignment surgery than before (Hypotheses 5) we estimate the interaction between sex reassignment surgery and life satisfaction: sex reassignment surgery x life satisfaction. A positive interaction effect suggests that after sex reassignment surgery the relationship between mental health/life satisfaction and job satisfaction is stronger than before.

It is important to consider that in all the specifications, as we have already mentioned, reciprocal effects among job satisfaction, mental health and life satisfaction might exist. Thus, in the present study we examine relationships rather than causal patterns. In addition, we analyze each specification for multicollinearity by utilizing the variance inflation factor (VIF). In practice, we omit the variables with a high VIF when blurred patterns are estimated due to multicollinearity. This is the case with Eq. (3) where we cannot simultaneously include information for both mental health and life satisfaction.

## 5. Results

### 5.1. Men to women

In Table 3 we present estimations for men who have undergone sex reassignment surgery and become women. In Model I we offer the mental health estimations. We observe that sex reassignment surgery is positively associated with mental health ( $b = 0.805$ ;  $p < 0.01$ ). Thus, we accept Hypothesis 1. It seems that, after sex reassignment surgery, individuals experience better mental health. In addition, the time controls suggest that from period 3, and in each subsequent period, mental health increases in comparison to the reference category. Recall that the reference category is period 1, where none of the individuals have undergone sex reassignment surgery. For instance, we observe that, in period 3, individuals experience more intense mental health compared to period 1 ( $b = 0.397$ ;  $p < 0.05$ ). Moreover, in period 4 individuals experience more intense mental health in comparison to period 1 ( $b = 0.716$ ;  $p < 0.01$ ). The patterns may well suggest that, in this sample, transitioning people experience more intense mental health over time.

In Model II we present the life satisfaction estimations. The outcomes suggest that sex reassignment surgery is positively associated with life satisfaction ( $b = 1.003$ ;  $p < 0.01$ ). We accept Hypothesis 2; that is, after sex reassignment surgery individuals experience higher life satisfaction. Moreover, based on the time controls, it is observed that from period 4, and in each subsequent period, life satisfaction increases in comparison to period 1. As in the mental health model, we suggest that transitioning people might experience higher life satisfaction over time.

Model III displays the job satisfaction estimations. We observe that sex reassignment surgery is positively associated with job satisfaction ( $b = 1.024$ ;  $p < 0.01$ ). Based on the estimated patterns, we accept Hypothesis 3. We suggest that, after sex reassignment surgery, individuals experience higher job satisfaction. In addition, and as we can observe, the time controls suggest that from period 3, and in each subsequent period, job satisfaction increases in comparison to period 1. We suggest that transitioning people might experience higher job satisfaction over time.



In Models IV and V we offer job satisfaction estimations by also controlling for mental health and life satisfaction, respectively. Qualitatively speaking, the same patterns are observed in both models; sex reassignment surgery is positively associated with job satisfaction. However, as expected, adding additional information means that the magnitude of the coefficients is smaller in comparison to Model III. In addition, and as expected, there is a positive association between mental health and job satisfaction, as well as a positive association between life satisfaction and job satisfaction.

We use the information in Table 5, Panel I to examine whether Hypotheses 1 to 3 hold in each and every period. Consider that in period 1, none of the individuals have undergone the sex reassignment surgery, while in periods 7 and 8 all individuals have undergone the sex reassignment surgery. Thus, in periods 1, 7 and 8, the relevant examination is not applicable (this is because in period 1 the sex reassignment surgery variable always equals 0, while in periods 7 and 8 the sex reassignment surgery variable always equals 1). As can be observed, the estimations suggest that, from period 2 to period 6, positive associations between sex reassignment surgery and i) mental health (Specification I), ii) life satisfaction (Specification II) and iii) job satisfaction (Specification III) hold. In all three cases, in period 6 the magnitude of the coefficients is stronger in comparison to period 2. Indeed, as observed in Specification III, the association between sex reassignment surgery and job satisfaction is stronger in period 6 ( $b = 3.133$ ;  $p < 0.01$ ) compared to period 2 ( $b = 0.908$ ;  $p < 0.05$ ). This finding suggests that individuals who faced a weaker association between sex reassignment surgery and job satisfaction in period 2, feel a stronger association between sex reassignment surgery and job satisfaction in period 6. However, as also observed, fluctuations exist; that is, changes in these associations occur across time.

In Table 6, we focus on the association between sex reassignment surgery and job satisfaction. In Panel I in Model I, we see the interaction between sex reassignment surgery and mental health. The interaction effect is positive ( $b = 0.822$ ;  $p < 0.01$ ). We accept Hypothesis 4; that is, it seems that after sex reassignment surgery, the relationship between mental health and job satisfaction is stronger than before. In addition, the information in Panel I, Model II, allows us to estimate the interaction between sex reassignment surgery and life satisfaction. The interaction effect is positive ( $b = 0.633$ ;  $p < 0.01$ ). Based on the outcomes, we accept Hypothesis 5; indeed, it seems that after sex reassignment surgery the relationship between life satisfaction and job satisfaction is stronger than before.

## 5.2. Women to men

For women who have undergone sex reassignment surgery and become men, the patterns are qualitatively comparable to those of men. Indeed, as can be seen from Table 4, Model I, sex reassignment surgery is positively associated with mental health ( $b = 0.577$ ;  $p < 0.01$ ), and thus Hypothesis 1 is accepted. In addition, in Model II, the estimations show that sex reassignment surgery is positively associated with life satisfaction ( $b = 0.511$ ;  $p < 0.01$ ), and thus we accept Hypothesis 2. Moreover, in Model III we observe that sex reassignment surgery is positively associated with job satisfaction ( $b = 0.740$ ;  $p < 0.01$ ), meaning that we accept Hypothesis 3. In all three models, the time controls suggest that from period 3 and in each subsequent period, mental health, as well as life and job satisfaction increase compared to the reference category (i.e. period 1). We suggest that transitioning people might experience better mental health and higher life and job satisfaction as time goes by. Models IV and V present job satisfaction estimations which are obtained by adjusting the regressions with mental health and life satisfaction information, respectively. As more information is added, the job satisfaction patterns are qualitatively comparable to those of Model III. In other words, there is a positive association between sex reassignment surgery and job satisfaction. However, the magnitude of the coefficients is smaller compared to those of Model III. In addition, positive associations between mental health/life satisfaction and job satisfaction are observed.

Table 5, in Panel II, presents the information we use to examine whether Hypotheses 1–3 hold for each period. The estimations suggest that from period 2 to period 6, positive associations between sex reassignment surgery and i) mental health (Specification I), ii) life satisfaction (Specification II) and iii) job satisfaction (Specification III) hold. However, it is observed that in various periods, the results are not statistically significant. The limited number of observations per period  $n = 54$  might have affected the patterns.

Moreover, Table 6, Panel II in Model I, presents the interaction between sex reassignment surgery and mental health. The interaction effect is positive ( $b = 0.843$ ;  $p < 0.01$ ), and thus we can accept Hypothesis 4. We suggest that, after sex reassignment surgery, the relationship between mental health and job satisfaction is stronger than before. Finally, in Panel II in Model II, we estimate the interaction between sex reassignment surgery and life satisfaction. The interaction effect is positive ( $b = 0.374$ ;  $p < 0.05$ ), and thus we accept Hypothesis 5. Based on the

estimations, we suggest that, after sex reassignment surgery, the relationship between life and job satisfaction is stronger than before.

### 5.3. Comparisons between men to women and women to men

In Table 6, Panel III in Models III, and IV we simultaneously pool data for men who became women and for women who became men. In Model III, controlling also for sex reassignment surgery and mental health, we estimate that men who became women experience higher job satisfaction ( $b = 0.568$ ;  $p < 0.05$ ) than women who became men. Similarly, in Model IV, controlling also for sex reassignment surgery and life satisfaction, we estimate that men who became women experience higher job satisfaction ( $b = 0.481$ ;  $p < 0.05$ ) than women who became men.

## 6. Discussion and conclusions

In the current study, we utilize longitudinal data for men who became women, and for women who became men through sex reassignment surgery in the UK. The aim is to evaluate whether transitioning could be positively associated with job satisfaction. The estimations accept our hypothesis for both groups of employees. The estimations suggest that employees not only experience higher job satisfaction after sex reassignment surgery, but also during transitioning. Indeed, each subsequent period is associated with higher job satisfaction compared to the reference period (first data wave). In addition, our framework enables us to estimate that after sex reassignment surgery the relations between mental health/life satisfaction and job satisfaction are stronger than before.

The existing literature finds that gender transition is worthy and is related to a high degree of positive emotion, happiness, confidence, pride and interpersonal reactionary emotions, both during transition and as a result of transitioning (Budge et al., 2015, Brewster et al., 2014, Budge et al., 2013 and Johansson et al., 2010). Indeed, studies suggest that, for some trans people, gender transition is the most positive and rewarding experience they have ever had (Budge et al., 2015 and Budge et al., 2013). A plethora of studies suggest that, as biological sex characteristics align with preferred social gender, trans people begin to experience less psychological distress and engage in less avoidant coping styles which have a positive effect on their mental health and psychosocial function (Moreno-Perez and de Antonio, 2012 and Johansson et al., 2010). The estimations of our study are in line with the established knowledge to which we refer (Budge et al., 2013 and Johansson et al., 2010). In addition, studies find that sex reassignment surgery might have a positive effect on family and social relations, which are attributed to the multilevel adaptation of trans individuals and which positively affect life satisfaction (Cheng and Smyth, 2015 and Hess et al., 2014). These patterns are confirmed in our investigation. Moreover, in the current study, based on the available research, we suggest that identity congruency, and progress in the gender transition process might both be associated with better job outcomes and job evaluations. Gender transition relieves one of the stresses of having to constantly hide who one is, and this may promote confidence, genuine, productivity and relationships with coworkers and supervisors (Drydakis, 2016, Brewster et al., 2014, Brewster et al., 2012, Law et al., 2011, Morton, 2008, Carver, 2003 and Fredrickson, 2001). Indeed, it is suggested that all of these features enhance employees' job satisfaction. Our study's estimations are in line with these predictions.

In addition, the theoretical framework of our study gives us the opportunity to hypothesize and investigate additional associations. Our hypotheses enable us to suggest that since: (a) sex reassignment surgery is positively associated with mental health, and (b) mental health is positively associated with job satisfaction, then after sex reassignment surgery the association between mental health and job satisfaction might be stronger than before. Moreover, based on our theoretical framework, we suggest that since: (a) sex reassignment surgery is positively associated with life satisfaction, and (b) life satisfaction is positively associated with job satisfaction, then after sex reassignment surgery the association between life satisfaction and job satisfaction might be stronger than before. Consistent with our theoretical predictions, the estimations verify our hypotheses. Indeed, the literature finds that positive psychology acts as an internal factor influencing job satisfaction (Culbertson et al., 2010). Thus, after sex reassignment surgery, an increased mental health status might be more strongly associated with job satisfaction. In addition, it is suggested that employees satisfied with their life are characterized by positive traits, and work actively towards new goals while experiencing those traits that affect their job commitment and the satisfaction they experience after completing their tasks (Qu and Zhao, 2012 and Bowling et al., 2010). Thus, after sex reassignment surgery, an increased level of life satisfaction might be more strongly associated with job satisfaction.

The results of this study could well be important for the academic community, and employers. As we have highlighted, studies on trans employees' job satisfaction are scarce. Indeed, all valuable existing studies on trans

people's workplace experiences focus mainly on measuring discriminatory patterns and how equality policies reduce stigma and biased evaluations (Bevan, 2015, Callan, 2014, Trevor and Boddy, 2013, Grant et al., 2011 and Whittle et al., 2007). Our study provides a theoretical and empirical framework which makes it possible to investigate trans employees' lived experiences. It also presents the opportunity for a plethora of new theoretical and empirical specifications to appear. Of importance is how additional wellbeing and mental health indexes, such as happiness and personality indexes, are associated with the relations under investigation. Indeed, new results should emerge from the investigation of how intermediate steps before the sex reassignment surgery affect employees' job satisfaction through the role of internal/intrinsic factors.

Moreover, by considering the hostile climate against trans employees, as captured by published studies (Bevan, 2015, Callan, 2014, Grant et al., 2011 and Whittle et al., 2007) the patterns of this study reveal a story for firms (employers, colleagues and HR). Based on the estimations it seems that during transition and after sex reassignment surgery employees face higher levels of mental health, life and job satisfaction. In the literature, these traits are perceived as productivity elements that firms care about (Culbertson et al., 2010, Powell and Greenhaus, 2010, Avey et al., 2011, Luthans and Avolio, 2009 and Lyubomirsky et al., 2005). Based on this study, it seems that firms should not treat transitioning employees in a negative way because their gender transition might entail positive personal advancements. Unfortunately, however, based on the qualitative evaluations of trans people, it seems that HR do not have appropriate information on the issue in order to train their staff, reduce biases, and adopt affirmative actions (Bevan, 2015, Callan, 2014, Morton, 2008 and Whittle et al., 2007). Although we do not have indexes regarding the degree of support within the workplace towards employees who reassigned their sex, we suggest that if trans employees work in a supportive environment that responds positively towards them, they might also tend to be happier individuals and be more satisfied at work because they genuinely enjoy working there. The social cost of excluding any minority population from employment is perceived as significant (Badgett, Durso, Mallory, & Kastanis, 2013). Conversely, good relationships between employers and employees increase trans employees' openness and improve job attitudes, which can benefit firms as a whole, given that teamwork is a very important aspect of firm productivity and success (Badgett et al., 2013). Thus, social planners, social workers, health providers and HR should work on factors that can affect trans individuals' quality of life, mental health and workplace environments, while also trying to foster a diverse social framework in which trans can function well, progress and fulfil their maximum potential.

A finding suggests that men who became women experience higher job satisfaction than women who became men, both after and before their sex reassignment surgery. First, in the international literature, the general pattern suggests that women are happier with their jobs than men, regardless of their lower salary, their employment in less desirable occupations, and the potential sexist social environment (Drydakis, 2012a, Gazioglu and Tansel, 2006 and Clark, 1997). This pattern can perhaps be explained by the fact that women have gained a better position in the labor market relative to their expectations (Clark, 1997). Gender role expectation theory (Eagly, 1987) emphasizes the causal impact of gender roles on people's belief about the behavior deemed appropriate for each sex. Men and women tend to behave in accordance with prescribed social roles, both at home and in the workplace. If gender role expectations embedded in traditional value systems are reproduced by trans employees, we might employ relevant to gender role expectation theory arguments in order to evaluate the assigned pattern of our study. Although, we do not utilize data for non-trans employees, in order to make job satisfaction comparisons between trans and non-trans employees' workplace evaluations, it seems that trans women's workplace evaluations are qualitative comparable to those of non-trans women, i.e. women experience higher job satisfaction than men. However, for firm conclusions we need information regarding trans employees' evaluations on gender role expectations, as well as a systematic comparison between trans and non-trans people. This would be a new study to examine the workplace expectations of trans employees. Secondly, based on the study's patterns, the association between mental health/life satisfaction and job satisfaction is higher for men who became women than for women who became men. More specifically, under our theoretical framework, the magnitude of coefficients might partially explain why men who became women experience higher job satisfaction than women who became men. Consider, however, that this study does not evaluate whether trans women face an 'easier' or 'harder' gender transition than trans men, whether trans women experience more or less societal acceptance than trans men, and whether these experiences could affect trans people well-being indicators, and workplace evaluations. However, these points represent new research questions.

The study's patterns should be evaluated while considering the characteristics of the data set. The utilized data set is not random. As a result, generalizations are not feasible. The study has limited observations that restrict any generalization. What we need is a new study which considers additional regions and a richer sample. Additionally, our data set has information for those men and women who are in the process of undergoing sex reassignment

surgery in the near future. It is possible to see different patterns if trans people are in the preliminary stages of the transition with a desire to undergo a sex reassignment surgery, if they have undergone sex reassignment surgery years before, if they are not planning to undergo a sex reassignment surgery, or if they cannot undergo the sex reassignment surgery due to financial or other struggles. We suggest that the feature of sex reassignment surgery might have affected the patterns of this study if sex reassignment surgery was a milestone for those people. Approaching their target (period before the sex reassignment surgery) and achieving their target (period after the sex reassignment surgery) might have positively affected mental health, life and job satisfaction. Moreover, the studies to which we refer suggest that positive surgical outcomes are essential for positive psychological adjustments. The relation between sex reassignment surgery and job satisfaction might be challenged in cases where negative surgical outcomes have been reached. In addition to this, consider that anxiety and stress before surgery might have affected the patterns, while relief after surgery might have also affected the outcomes. The aforementioned characteristics require new research for firm evaluations. Moreover, the current data set covers a limited period of time. We might expect to observe different patterns if additional periods were available. In addition, the majority of the study's participants belong to trans social networks, another feature that may have affected the outcomes. Support from other trans people may have a positive impact on mental health, life and job satisfaction. Moreover, we make no attempt to examine the effect of sexual orientation on job satisfaction in this study. We suggest that sexual orientation might affect employees' job satisfaction. These aforementioned points suggest the need for new studies.

Consider also that this is not a study designed to unravel discriminatory patterns, nor does it seek to compare trans with non-trans employees. Thus, evaluations cannot be offered regarding the aforementioned issues. Indeed, there is no investigation of whether the trans employees in our sample experience biased treatment. Also omitted from the evaluation is whether trans employees experience lower job satisfaction compared to non-trans employees. The same holds for mental health and life satisfaction measurements. These could well be topics for new studies. Moreover, by default this study focuses on a working population. We do not examine inactive and unemployed trans individuals. Thus, our study draws no conclusions regarding non employed trans individuals. Importantly, in this study our participants do not change region or employer during their gender transition. The latter feature might be a particularly significant sign of good relationships between employees and firms. In relation to this, we might expect that after gender transition a new workplace environment could be associated with higher well-being and job satisfaction. This consideration is also an important new research area which would clarify additional associations. The current study does not examine how the patterns are affected by industrial relations, such as HR, support from firms and colleagues, union existence, occupations, and sectors. One may need to estimate non-recursive models to evaluate causality claims. These should be new studies.

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**Table 1. Descriptive statistics; Men to women**

	Panel I	Panel II	Panel III	Panel IV
	All volumes; 2012-2015	1 <sup>st</sup> volume ; 2012 <sup>^</sup>	8 <sup>th</sup> volume ; 2015 <sup>^^</sup>	Difference Test; 1 <sup>st</sup> volume compared to 8 <sup>th</sup> volume
Age (continuous; c.)	36.37 (7.61)	34.87 (7.52)	37.91 (7.62)	$t[154]=2.55^*$
Ethnicity (percentage; %)	79.48 (0.40)	79.48 (0.40)	79.48 (0.40)	-
Higher education (%)	66.66 (0.47)	66.66 (0.47)	66.66 (0.47)	-
Working experience (c.)	13.23 (6.29)	11.70 (6.22)	14.74 (6.21)	$t[154]=3.04^*$
White-collar employees (%)	78.20 (0.41)	78.20 (0.41)	77.32 (0.41)	-
Annual gross salary (c.)	34,576.92 (6,545.83)	33,307.71 (6,731.02)	36,000.01 (6,040.98)	$t[154]=2.62^*$
Sex reassignment surgery (%)	-	0 (0)	100 (0)	-
Job satisfaction's sub-items ( $JS_1, \dots, JS_4$ )				
JS <sub>1</sub> : Enjoyment of tasks (c.)	2.54 (0.72)	2.15 (0.48)	2.98 (0.80)	$t[154]=6.35^*$
JS <sub>2</sub> : Personal performance (c.)	2.62 (0.79)	2.12 (0.51)	3.15 (0.81)	$t[154]=7.87^*$
JS <sub>3</sub> : Salary (c.)	2.59 (0.76)	2.05 (0.35)	3.14 (0.80)	$t[154]=7.06^*$
JS <sub>4</sub> : Relations with colleagues (c.)	2.58 (0.82)	2.06 (0.40)	2.92 (0.92)	$t[154]=8.19^*$
JS: Job satisfaction (c. $JS_1 + \dots + JS_4$ )	10.35 (2.14)	8.39 (1.12)	12.33 (2.23)	$t[154]=12.53^*$
Mental health's sub-items ( $MH_1, \dots, MH_4$ )				
MH <sub>1</sub> : Positivism towards life (c.)	2.25 (0.63)	1.93 (0.58)	2.53 (0.59)	$t[154]=5.81^*$
MH <sub>2</sub> : Extraversion (c.)	2.34 (0.67)	1.96 (0.49)	2.67 (0.63)	$t[154]=8.28^*$
MH <sub>3</sub> : Ability to cope with stress (c.)	2.30 (0.69)	1.97 (0.53)	2.65 (0.66)	$t[154]=7.50^*$
MH <sub>4</sub> : Optimism about the future (c.)	2.34 (0.71)	1.93 (0.43)	2.78 (0.80)	$t[154]=5.56^*$
MH: Mental health (c. $MH_1 + \dots + MH_4$ )	9.25 (1.77)	7.80 (1.18)	10.65 (1.61)	$t[154]=10.17^*$
Life satisfaction's sub-items ( $LS_1, \dots, LS_4$ )				
LS <sub>1</sub> : Health-condition (c.)	2.20 (0.75)	1.91 (0.58)	2.58 (0.84)	$t[154]=7.65^*$
LS <sub>2</sub> : Social-relations (c.)	2.33 (0.65)	1.98 (0.44)	2.73 (0.65)	$t[154]=9.06^*$
LS <sub>3</sub> : Self-esteem (c.)	2.54 (0.85)	2.08 (0.72)	3.07 (0.90)	$t[154]=10.97^*$
LS <sub>4</sub> : Body-image (c.)	2.50 (0.86)	2.14 (0.75)	2.88 (0.91)	$t[154]=8.22^*$
LS: Life satisfaction (c. $LS_1 + \dots + LS_4$ )	9.58 (2.14)	8.12 (1.75)	11.28 (2.10)	$t[154]=13.92^*$
Observations	624 (8 volumes)	78 (1 <sup>st</sup> volume)	78 (8 <sup>th</sup> volume)	

Notes: Standard deviations are in parentheses. Degree of freedom is in the bracket. (<sup>^</sup>) Before sex reassignment surgery (<sup>^^</sup>) After sex reassignment surgery. Ethnicity; 1=White-British, 0=otherwise. Higher education degree; 1=higher education degree, 0=otherwise. White-collar employment; 1=white-collar employment, 0=otherwise. Sex reassignment; 1=sex reassignment surgery, 0=before sex reassignment surgery. (\*) Significant at the 1% level.

**Table 2. Descriptive statistics; Women to men**

	Panel I	Panel II	Panel III	Panel IV
	All volumes; 2012-2015	1 <sup>st</sup> volume ; 2012 <sup>^</sup>	8 <sup>th</sup> volume ; 2015 <sup>^^</sup>	Difference Test; 1 <sup>st</sup> volume compared to 8 <sup>th</sup> volume
Age (continuous; c.)	35.15 (7.20)	33.70 (7.13)	36.42 (7.23)	$t[108]=1.06^{**}$
Ethnicity (percentage; %)	88.88 (0.31)	88.88 (0.31)	88.88 (0.31)	-
Higher education (%)	42.59 (0.48)	42.59 (0.49)	42.59 (0.49)	-
Working experience (c.)	12.96 (6.08)	11.51 (6.08)	14.25 (6.05)	$t[108]=2.34^*$
White-collar employees (%)	59.25 (0.42)	59.25 (0.49)	59.25 (0.49)	-
Annual gross salary (c.)	34,037.37 (6,845.26)	32,722.25 (6,822.31)	35,370.12 (6,788.39)	$t[108]=2.02^*$
Sex reassignment surgery (%)	-	0 (0)	100 (0)	-
Job satisfaction's sub-items ( $JS_1, \dots, JS_4$ )				
JS <sub>1</sub> : Enjoyment of tasks (c.)	2.31 (0.74)	1.90 (0.40)	2.83 (0.84)	$t[108]=5.08^*$
JS <sub>2</sub> : Personal performance (c.)	2.43 (0.77)	1.98 (0.53)	2.98 (0.68)	$t[108]=4.25^*$
JS <sub>3</sub> : Salary (c.)	2.34 (0.84)	1.79 (0.59)	2.87 (0.70)	$t[108]=4.57^*$
JS <sub>4</sub> : Relations with colleagues (c.)	2.45 (0.93)	1.83 (0.42)	2.94 (0.95)	$t[108]=5.83^*$
JS: Job satisfaction (c. $JS_1 + \dots + JS_4$ )	9.54 (2.42)	7.51 (1.22)	11.62 (2.02)	$t[108]=8.31^*$
Mental health's sub-items ( $MH_1, \dots, MH_4$ )				
MH <sub>1</sub> : Positivism towards life (c.)	2.09 (0.56)	1.83 (0.37)	2.35 (0.64)	$t[108]=6.70^*$
MH <sub>2</sub> : Extraversion (c.)	2.24 (0.53)	2.01 (0.36)	2.42 (0.60)	$t[108]=4.91^*$
MH <sub>3</sub> : Ability to cope with stress (c.)	2.21 (0.72)	1.92 (0.63)	2.53 (0.74)	$t[108]=5.51^*$
MH <sub>4</sub> : Optimism about the future (c.)	2.17 (0.70)	1.87 (0.55)	2.55 (0.66)	$t[108]=5.56^*$
MH: Mental health (c. $MH_1 + \dots + MH_4$ )	8.72 (1.68)	7.64 (1.11)	9.87 (1.61)	$t[108]=9.97^*$
Life satisfaction's sub-items ( $LS_1, \dots, LS_4$ )				
LS <sub>1</sub> : Health-condition (c.)	2.16 (0.55)	1.85 (0.40)	2.51 (0.60)	$t[108]=7.30^*$
LS <sub>2</sub> : Social-relations (c.)	2.15 (0.53)	1.90 (0.29)	2.40 (0.68)	$t[108]=8.46^*$
LS <sub>3</sub> : Self-esteem (c.)	2.28 (0.77)	1.92 (0.72)	2.66 (0.67)	$t[108]=8.57^*$
LS <sub>4</sub> : Body-image (c.)	2.13 (0.74)	1.75 (0.64)	2.51 (0.74)	$t[108]=7.78^*$
LS: Life satisfaction (c. $LS_1 + \dots + LS_4$ )	8.73 (1.67)	7.44 (1.31)	10.11 (1.46)	$t[108]=12.78^*$
Observations	432 (8 volumes)	54 (1 <sup>st</sup> volume)	54 (8 <sup>th</sup> volume)	

Notes: Standard deviations are in parentheses. Degree of freedom is in the bracket. (<sup>^</sup>) No one has undergone sex reassignment surgery. (<sup>^^</sup>) All have undergone sex reassignment surgery. Ethnicity; 1=White-British, 0=otherwise. Higher education degree; 1=higher education degree, 0=otherwise. White-collar employment; 1=white-collar employment, 0=otherwise. Sex reassignment; 1=sex reassignment surgery, 0=before sex reassignment surgery. (\*) Significant at the 1% level.

**Table 3. Random effect estimations; Men to women**

	Model I Mental health	Model II Life satisfaction	Model III Job satisfaction	Model IV Job satisfaction	Model V Job satisfaction
Sex reassignment surgery	0.805 (0.131)*	1.003 (0.159)*	1.024 (0.174)*	0.601 (0.164)*	0.626 (0.167)*
Period 2	0.110 (0.141)	0.083 (0.170)	0.184 (0.188)	0.130 (0.172)	0.154 (0.174)
Period 3	0.397 (0.153)**	0.174 (0.186)	0.529 (0.203)*	0.330 (0.187)***	0.466 (0.188)**
Period 4	0.716 (0.165)*	0.366 (0.200)**	0.794 (0.219)*	0.434 (0.203)**	0.658 (0.203)*
Period 5	1.070 (0.189)*	0.560 (0.231)**	1.460 (0.248)*	0.921 (0.233)*	1.251 (0.232)*
Period 6	1.377 (0.195)*	1.008 (0.237)*	1.895 (0.256)*	1.199 (0.243)*	1.512 (0.241)*
Period 7	1.716 (0.205)*	1.359 (0.250)*	2.286 (0.265)*	1.417 (0.257)*	1.767 (0.253)*
Period 8	2.075 (0.205)*	1.923 (0.250)*	2.850 (0.265)*	1.797 (0.263)*	2.113 (0.258)*
Age	-0.037 (0.059)	-0.056 (0.075)	-0.038 (0.063)	-0.026 (0.059)	-0.010 (0.060)
Working experience	0.025 (0.069)	0.131 (0.088)	0.058 (0.074)	0.053 (0.070)	0.001 (0.060)
Higher education	-0.261 (0.410)	0.437 (0.527)	0.592 (0.427)	0.739 (0.403)***	0.404 (0.408)
Ethnicity	-0.519 (0.420)	-0.034 (0.540)	-0.115 (0.439)	0.133 (0.414)	-0.076 (0.418)
White-collar job	0.378 (0.436)	0.401 (0.561)	-0.206 (0.453)	-0.395 (0.428)	-0.358 (0.432)
Region	0.367 (0.287)	0.050 (0.369)	-0.119 (0.298)	-0.304 (0.282)	-0.144 (0.284)
Mental health	-	-	-	0.511 (0.047)*	-
Life satisfaction	-	-	-	-	0.387 (0.039)*
R <sup>2</sup> overall	0.358	0.313	0.432	0.511	0.497
Wald x <sup>2</sup>	839.52	674.47	888.69	1173.81	1127.03
Prob>x <sup>2</sup>	0.000	0.000	0.000	0.000	0.000
Number of observations	624	624	624	624	624

Notes: Standard errors are in parentheses. (\*) Significant at the 1% level. (\*\*) Significant at the 5% level. (\*\*\*) Significant at the 1% level.

**Table 4. Random effect estimations; Women to men**

	Model I Mental health	Model II Life satisfaction	Model III Job satisfaction	Model IV Job satisfaction	Model V Job satisfaction
Sex reassignment surgery	0.577 (0.000)*	0.511 (0.147)	0.740 (0.212)*	0.425 (0.204)**	0.484 (0.201)**
Period 2	0.165 (0.140)	0.143 (0.162)	0.151 (0.520)	0.069 (0.220)	0.083 (0.219)
Period 3	0.319 (0.153)**	0.511 (0.175)*	0.567 (0.252)**	0.409 (0.238)***	0.321 (0.238)
Period 4	0.442 (0.165)*	0.721 (0.189)*	1.175 (0.272)*	0.958 (0.258)*	0.828 (0.259)*
Period 5	0.630 (0.184)*	1.136 (0.207)*	1.882 (0.296)*	1.570 (0.283)*	1.334 (0.288)*
Period 6	0.888 (0.195)*	1.238 (0.229)*	2.510 (0.313)*	2.066 (0.302)*	1.913 (0.305)*
Period 7	1.180 (0.207)*	1.722 (0.229)*	3.106 (0.327)*	2.513 (0.320)*	2.274 (0.328)*
Period 8	1.532 (0.207)*	2.129 (0.229)*	3.477 (0.327)*	2.702 (0.328)*	2.446 (0.338)*
Age	0.037 (0.054)	0.040 (0.047)	-0.014 (0.060)	-0.038 (0.060)	-0.035 (0.060)
Working experience	0.003 (0.065)	-0.031 (0.057)	-0.024 (0.072)	-0.022 (0.073)	-0.007 (0.072)
Higher education	0.628 (0.522)	0.099 (0.452)	0.349 (0.569)	0.028 (0.576)	0.305 (0.572)
Ethnicity	-0.107 (0.654)	-0.124 (0.566)	0.689 (0.713)	0.746 (0.719)	0.305 (0.572)
White-collar job	-0.134 (0.538)	-0.039 (0.466)	-0.627 (0.586)	-0.555 (0.592)	-0.609 (0.589)
Region	-0.882 (0.365)	-1.101 (0.316)	-1.600 (0.397)	-1.143 (0.406)	-1.063 (0.406)*
Mental health	-	-	-	0.516 (0.072)	-
Life satisfaction	-	-	-	-	0.486 (0.065)
R <sup>2</sup> overall	0.337	0.411	0.506	0.510	0.523
Wald x <sup>2</sup>	468.75	514.27	680.66	821.24	832.13
Prob>x <sup>2</sup>	0.000	0.000	0.000	0.000	0.000
Number of observations	432	432	432	432	423

Notes: Standard errors are in parentheses. (\*) Significant at the 1% level.

**Table 5: Slope and intercept analysis per period**

	Specification I: Men to women		Specification II: Women to men	
	Slope	Intercept	Slope	Intercept
<b>Panel I</b>				
Sex reassignment surgery (independent) on mental health (dependent)				
Model I: Period 1 <sup>^</sup>	-	-	-	-
Model II: Period 2	0.900 (0.402)**	8.681 (1.843)*	1.266 (0.408)*	5.988 (1.223)*
Model III: Period 3	0.970 (0.317)*	8.698 (1.719)*	0.832 (0.402)**	6.146 (1.338)*
Model IV: Period 4	1.041 (0.367)*	8.499 (1.904)*	0.688 (0.404)***	6.787 (1.426)*
Model V: Period 5	2.180 (0.655)*	7.605 (2.063)*	1.037 (0.545)**	6.720 (1.597)*
Model VI: Period 6	2.451 (1.205)*	8.405 (2.461)*	1.824 (1.084)***	5.583 (2.048)*
Model VII: Period 7 <sup>^^</sup>	-	-	-	-
Model VIII: Period 8 <sup>^^</sup>	-	-	-	-
<b>Panel II</b>				
Sex reassignment surgery (independent) on life satisfaction (dependent)				
Model I: Period 1 <sup>^</sup>	-	-	-	-
Model II: Period 2	1.346 (0.500)*	10.436 (2.296)*	0.997 (0.413)**	6.949 (1.237)*
Model III: Period 3	1.182 (0.429)*	8.806 (2.329)*	1.042 (0.408)*	7.472 (1.358)*
Model IV: Period 4	1.172 (0.441)*	8.482 (2.287)*	0.409 (0.419)	7.332 (1.478)*
Model V: Period 5	1.631 (0.748)**	7.091 (2.354)*	0.788 (0.473)****	7.452 (1.386)*
Model VI: Period 6	2.744 (1.312)**	7.784 (2.678)*	1.384 (0.881)****	6.077 (1.663)*
Model VII: Period 7 <sup>^^</sup>	-	-	-	-
Model VIII: Period 8 <sup>^^</sup>	-	-	-	-
<b>Panel III</b>				
Sex reassignment surgery (independent) on job satisfaction (dependent)				
Model I: Period 1 <sup>^</sup>	-	-	-	-
Model II: Period 2	0.908 (0.402)**	8.681 (1.843)*	0.679 (0.449)	8.759 (1.347)*
Model III: Period 3	1.480 (0.319)*	9.097 (1.731)*	0.567 (0.462)	9.891 (1.539)*
Model IV: Period 4	0.809 (0.369)**	7.897 (1.912)*	0.903 (0.487)***	9.305 (1.717)*
Model V: Period 5	2.137 (0.715)*	9.002 (2.251)*	1.851 (0.668)*	8.834 (1.957)*
Model VI: Period 6	3.133 (1.317)*	9.657 (2.689)*	1.977 (1.421)	9.600 (2.684)*
Model VII: Period 7 <sup>^^</sup>	-	-	-	-
Model VIII: Period 8 <sup>^^</sup>	-	-	-	-
<i>Notes: Each model is a separate regression and controls also for age, working experience, higher education, ethnicity, white-collar job, and region. For men to women in each model n=78. For women to men in each model n=54.</i> <i>(<sup>^</sup>) No one has undergone sex reassignment surgery – thus, in all cases the sex reassignment surgery dummy equals to 0, and the relevant regression is not applicable.</i> <i>(<sup>^^</sup>) All have undergone sex reassignment surgery – thus, in all cases the sex reassignment surgery dummy equals to 1, and the relevant regression is not applicable..</i> <i>Standard errors are in parentheses. (*) Significant at the 1% level. (**) Significant at the 5% level. (***) Significant at the 10% level. (****) Significant at the 10% level.</i>				

**Table 6. Random effect estimations**

	Model I Job satisfaction Men to women (a)	Model II Job satisfaction Women to men (b)	Model III Job satisfaction Total sample (a)+(b)
<b>Panel I<sup>^</sup></b>			
Sex reassignment surgery x mental health	0.096 (0.019)*	0.079 (0.024)*	-
R <sup>2</sup> overall	0.518	0.519	-
Wald x <sup>2</sup>	1209.21	838.57	-
Prob>x <sup>2</sup>	0.000	0.000	-
Number of observations	624	432	-
<b>Panel II<sup>^</sup></b>			
Sex reassignment surgery x life satisfaction	0.095 (0.017)*	0.070 (0.024)*	-
R <sup>2</sup> overall	0.488	0.526	-
Wald x <sup>2</sup>	1164.18	839.52	-
Prob>x <sup>2</sup>	0.000	0.000	-
Number of observations	624	432	-
<b>Panel III<sup>^^</sup></b>			
Men to women	-	-	0.568 (0.243)*
R <sup>2</sup> overall	-	-	0.501
Wald x <sup>2</sup>	-	-	1962.78
Prob>x <sup>2</sup>	-	-	0.000
Number of observations	-	-	1056
<b>Panel IV<sup>^^^</sup></b>			
Men to women	-	-	0.481 (0.241)*
R <sup>2</sup> overall	-	-	0.509
Wald x <sup>2</sup>	-	-	1950.11
Prob>x <sup>2</sup>	-	-	0.000
Number of observations	-	-	1056
<b>Panel V<sup>#</sup></b>			
Sex reassignment surgery x men to women	-	-	0.440 (0.135)*
R <sup>2</sup> overall	-	-	0.434
Wald x <sup>2</sup>	-	-	1485.14
Prob>x <sup>2</sup>	-	-	0.000
Number of observations	-	-	1056

Notes: Each panel is a separate regression.

(<sup>^</sup>) Panels I and II control also for time effects, age, working experience, higher education, ethnicity, white-collar job, and region.

(<sup>^^</sup>) Panel III controls also for sex reassignment surgery, mental health, time effects, age, working experience, higher education, ethnicity, white-collar job and region.

(<sup>^^^</sup>) Panel IV controls also for sex reassignment surgery, life satisfaction, time effects, age, working experience, higher education, ethnicity, white-collar job and region.

(<sup>#</sup>) Panel V controls also for time effects, age, working experience, higher education, ethnicity, white-collar job and region. Standard errors are in parentheses. (\*) Significant at the 1% level.